FOREST FIRE MANAGEMENT IN THE NORTHWEST TERRITORIES

PUBLIC DISCUSSION PAPER

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FOREST FIRE MANAGEMENT IN THE NORTHWEST TERRITORIES

I. INTRODUCTION

The purpose of this public discussion paper is to involve Northwest Territories residents in the preparation of a Northwest Territories Forest Fire Management Policy.

The Government of the Northwest Territories has been responsible for forest fire operations since April 1987, when the fire management program was transferred from the Government of Canada to the territorial Department of Renewable Resources.

More than one-third of the Northwest Territories is forest land. About 32,000 people live within the treeline, in 35 communities ranging in size from 11 to 12,000 people.

The forests have their own intrinsic value and play an essential ecological role, but they are also a valuable renewable resource in the Northwest Territories. They are home to a diversity of wildlife which supports an important subsistence hunting and trapping economy. The forests support the tourist economy by providing recreational opportunities for residents and visitors and they also provide raw material for a growing northern forest industry.

The Government of the Northwest Territories encourages the development of the renewable resource economy, particularly in small communities where renewable resources increase self-reliance by providing a source of income and job opportunities. But the resources should be used in ways that do not limit opportunities for their use by future generations.

Fires are a natural phenomenon and not necessarily always "bad" for the Northwest Territories, but a fire management policy is needed which sets out how forests are to be protected from wildfires.

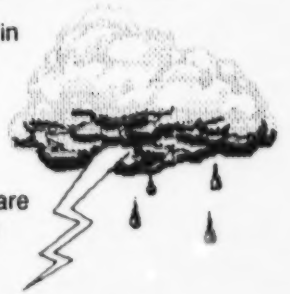
Forest fire management decisions have been based on a priority zone system. The Northwest Territories has been divided into a Fire Attack Zone and a Fire Observation Zone. This paper outlines a different approach to fire management.
By reading this discussion paper and providing comments, advice and information to the Government of the Northwest Territories, residents can influence the future of NWT forests and how forest fires will be managed.

II. THE NATURAL ROLE OF FIRE IN THE NORTHERN FOREST

The boreal forest of the Northwest Territories consists primarily of open stands of slow-growing black and white spruce and a ground cover of lichens and/or mosses which becomes quite dense as the stands age. This forest is interspersed with many treeless bogs which are often fringed by larch and by occasional dense and tall forest stands. In the southern portion of the Northwest Territories jack pine is common on sandy soils and some uplands. The common deciduous trees, often prominent following fire, include trembling aspen, balsam poplar and white birch.

The boreal forest is a fire-dependent ecosystem. Historically, fire has been the key factor initiating new successions, controlling species composition and age structure of forests, and producing the vegetation patterns on which wildlife depend. Fire is essential for the cycling of critical nutrients and minerals. Periodic fires have maintained a mix of successional stages, communities and age classes of trees. The northern forest is continuously renewed by fires.

Weather in large part determines the seasonal fire patterns from year to year. Most forest fires in the NWT are caused by lightning. Lightning accompanies thunderstorms which develop through convection currents caused by changes in geographic relief, frontal activity and heating of the ground by solar radiation. All of these mechanisms are regionally important throughout the Northwest Territories.



Certain climatic conditions are accentuated in the Northwest Territories and greatly influence forest fire activity. These conditions

include low precipitation and low relative humidity combined with long daylight hours during the fire season; the high flammability of fine fuels, such as lichens; and lightning storms accompanied by little or very patchy precipitation.

The effects of fire vary considerably just as fires themselves vary in intensity, duration, frequency, location, shape and size. The size of a burn and interspersion of burns results in numerous edges and a variety of cover types. This generates diversity in wildlife habitat.

Wildlife is affected by fire through changes in both plant composition or food resources and forest structure or shelter following fire. The distribution and movement of barren-ground caribou can be affected by fire. Fire can also reduce the amount of lichen forage available. Fires of small to moderate size create good habitat for moose, which prefer young forest stands. Furbearers in particular are affected by fire. Recurrent fires in some parts of the boreal forest have caused poplar and willow to replace coniferous forest, favouring beaver and providing habitat for snowshoe hare which in turn enhance the lynx population. Recent studies indicate that marten will readily use burned areas if there are sufficient wind-thrown trees and deadfall to provide shelter.

In summary, fire has always been a significant and natural occurrence in the forests of the Northwest Territories. Fire by itself is neither good nor bad and becomes so only as it relates to human value systems. A conflict arises when fire, fulfilling its natural role, interferes with human use of the forest resource.

Fire management consists of those activities concerned with the protection of people, property and forest areas from wildfire. It also means the use of prescribed burning for the attainment of forest management and other land use objectives. All fire management activities should be conducted in a manner that considers environmental, social and economic criteria.

III. HISTORY OF FIRE MANAGEMENT IN THE NORTHWEST TERRITORIES

The Northwest Territories entered the Dominion of Canada through the passing of the *North West Territories Act* of 1875 which included an ordinance for the prevention of forest fires. The North West Territories at that time comprised the present-day prairie provinces and the Northwest Territories. Many fires were left to burn themselves out. Beginning in the 1920s, fire detection patrols were done by boat and some lookout towers were built around settlements and areas of valuable timber.

By the 1940s and 1950s, the size of settlements had increased and, although forest fire control was still very limited, protection was afforded by the Dominion of Canada's Northwest Territories Forest Service to settlements and specific values along main access roads.

The valuable forested areas that burned in 1961, 1964 and 1966 (2,340 square kilometres yearly average compared to a 63 square kilometres average for 1962, 1963 and 1965) were the result of adverse fire weather conditions and the lack of resources to counter the rapid ignition and spread of fire. The situation was such that in 1967, a policy was developed whereby life, property and specific resource values would be protected utilizing fully available fire fighters and fire fighting equipment. The intent of the policy was to be more efficient and aggressive in conducting fire suppression activities.

In the early 1970s, the fire detection system relied on six lookout towers and air patrols with some radio coverage. There was still more of a reliance on public reporting of fires rather than on the detection system. Many fires went undiscovered and unattended.

Following severe fire seasons in the early 1970s, an expanded fire program was planned with a new "fire management" approach. The program was implemented during 1972 and 1973, during which time the quality and quantity of fire suppression resources were improved - more personnel including specialized fire persons; contracts for helicopter, air tanker and detection aircraft; an improved communication system; and an increase in annual capital expenditures were introduced into the new expanded program. Annual presuppression expenditures increased from $465,000 to more than $1 million.

The focus of the new policy was on a priority zone system, each zone to be given suppression action according to the person-years and funds approved annually by the federal Treasury Board. The system consisted of three priority protected zones and one unprotected zone. Priority Zone 1 included communities and defensible buffer strips around them. Zone 2 included major public works, isolated lodges and mines, stands of commercial timber of high value, and a corridor along main roads and waterways. Zone 3 contained most of the natural resource values - selected wildlife habitat, important recreational sites, important trapping areas, a few important watersheds and high quality sites containing commercial timber not included in Zones 1 and 2. The remainder of the area inside the treeline was designated as the Unprotected Zone or Zone 4.

The policy objective was to control fires during the first burning period. However, fire fighting resources were many times overloaded. In peak periods, when a multiple or campaign fire situation arose, the realities of a severe fire season dictated that fire fighting resources be mobilized and concentrated in higher priority areas, meaning that other priority areas would be temporarily assigned a lesser degree of protection.

The policy contained "action guidelines" for each zone which outlined spending authority to district fire personnel and put restrictions on the amounts that could be spent on fire suppression in each zone.

During the 1970s, the objectives of the new policy were slowly eroded while the level of resource protection was actually lessened. The size of the protected area was decreased in 1976 to minimize the overexpenditures of the fire suppression budget and to adhere to the economic restraints imposed by the government.

In 1977, it was decided to reclassify Priority Zone 3 as an unprotected zone with the exception of taking action on fires which could threaten higher priority zones. This decision placed the Zone 3 areas in the unprotected Zone 4 category.

By this stage, the priority of the fire management objectives had been largely overtaken by the priorities of financial management.

Drought in 1979 resulted in another severe fire season, which was compounded by the reclassification of zones and by fiscal constraints. A record 19,891 square kilometres were burned, including important trapping areas and a major portion of the Beverly caribou range east of Fort Smith. This event prompted the communities of the Northwest Territories, in particular, Fort Smith, to demand better protection from forest fires and major changes to the Government of Canada's forest fire management policy.

The Minister of Indian Affairs and Northern Development (DIAND) responded by appointing an independent Fire Review Panel to review the 1979 fire season including all aspects of fire management policy, criteria, objectives and fire action guidelines. The panel submitted a report in April 1980 containing more than 90 recommendations for an improved fire management program. The Minister accepted the recommendations and a new policy emphasizing community involvement and an aggressive initial attack was phased in beginning in 1980.

IV. THE CURRENT FIRE MANAGEMENT POLICY

The current fire management policy is designed to " ensure protection for northern communities and resources by reducing wildfire damages to a level consistent with the present and future needs of the people who are dependant on those resources for their social and economic sustenance ". The policy is supported in legislation by the *Territorial Lands Act.*

Under the policy, the western Arctic is divided into two zones - the Fire Attack Zone (FAZ) or protected area and the Observation Zone (OBZ) or natural fire area. These zones were established through a process of consultation with communities, native organizations and interested NWT residents in 1980 and 1981.

The FAZ is subdivided into two areas: Area No. 1 and Area No. 2.

Area No. 1 covers communities, major capital works, or areas identified as resource values including industrial sites, power and transmission facilities; productive hunting and trapping areas; critical areas of wildlife winter range; lands with a high capability for timber production, for watershed protection or erosion prone areas; and, prime areas of recreation and identified sites of ecological concern or cultural heritage.

Area No.2 represents the rest of the FAZ and includes lands identified as productive hunting and trapping areas; critical areas of wildlife winter range; and valuable watershed or erosion prone areas.

The OBZ includes areas where little use is being made of the land and resources. It is essentially woodland and tundra. Most of this zone is inaccessible to ground transportation. Fires in the OBZ are maintained in observation status and actioned only if resource values in the protected area become threatened and suppression forces are available.

The main features of the policy are as follows:

1. Resources requiring protection are identified at the community level in close consultation with northern residents and revisions made as warranted.

2. Fires in the FAZ receive rapid and strong initial attack with the objective of obtaining control within a 24-hour period.

3. Fires which elude initial attack are subjected to an escaped fire analysis to assess the additional suppression effort and resources required to contain them.

4. Continued suppression action would occur on fires which threaten communities and key resource values as predetermined with local groups and natural resource managers.

5. Fires in the OBZ would be maintained in observation status and actioned if certain criteria are met such as when resource values become threatened in the FAZ and suppression forces are available.

6. The policy objective is to maintain an annual burn rate of 1 per cent and this objective is being achieved.

V. THE DEVELOPMENT OF A NEW FOREST FIRE MANAGEMENT POLICY FOR THE NORTHWEST TERRITORIES

The Transfer of Fire Management from the Government of Canada to the Government of the Northwest Territories

In 1967, when the Government of the Northwest Territories moved to Yellowknife from Ottawa, a number of provincial-type responsibilities which had previously been those of the federal government were also transferred. Between 1969 and 1984 approximately 20 programs were transferred to the Government of the Northwest Territories.

A number of major events led to the transfer of forest and fire management responsibilities. The first was the severity of fires in the Northwest Territories during 1979-80 leading to dissatisfaction with government fire management policy among the Dene/Metis communities. A call was made for transfer of the program from Ottawa to Yellowknife so that northerners could participate directly in fire management decision-making. The transfer of responsibility for forest management and fire management was a complicated exercise which was carried out over a period of two years, with the official takeover on April 1, 1987.

The Forestry Working Group

In preparation for the April 1987 transfer of forest management responsibilities to the territorial government, the Government of the Northwest Territories Department of Renewable Resources initiated work on the development of Northwest Territories Forest and Fire Management Policies and Legislation.

The Northwest Territories wanted to develop policies in consultation with its residents. As a first step in developing a consultative process, the Forestry Working Group was

established as an interim mechanism to provide advice to the Government of the Northwest Territories on fire management policy. The group includes representatives from the communities, the forest industry, and the aircraft industry.

On August 19, 1987, the Mackenzie Valley Renewable Resources Management Board (now, the Denendeh Conservation Board) passed a resolution stating that the Forestry Working Group would henceforth operate as a committee of the Board. The resolution was approved by the Deputy Minister of Renewable Resources.

Through a series of meetings throughout 1988-89, the Forestry Working Group made many recommendations to the Government of the Northwest Territories in all areas of fire management. The following policy discussion is based on those recommendations.

VI. A NORTHWEST TERRITORIES FIRE MANAGEMENT POLICY

PRINCIPLES

The Northwest Territories Fire Management Policy will consist of several parts: (i) Authority and Accountability, (ii) Fire Prevention, (iii) Fire Detection, (iv) Fire Presuppression, (v) Fire Suppression, (vi) Prescribed Burning, (vii) Policy Review, and (viii) Implementation and Legislation. These component parts will contain specific guidelines governing each particular aspect of fire management. All parts, however, are to be governed by an overall philosophy of fire management. That philosophy is outlined in the following general principles:

1. Fire is a significant and natural phenomenon in the forests of the Northwest Territories.

2. Fire management is the most effective use of resources to protect people, property and forest areas from wildfire; fire management strives to attain forest management and other land use objectives in a manner that considers environmental, social and economic criteria.

3. Community consultation is a requirement for effective fire management that is responsive to the needs of Northwest Territories residents.

4. Fire management draws upon local knowledge.

5. Fire management policy will be consistent with Government of the Northwest Territories policies with respect to providing opportunities for participation by Northwest Territories residents.

6. Fire management policy should not prejudice the provisions of the Inuvialuit Final Agreement, the Dene/Metis Agreement-in-Principle and any future land claims final agreements.

(i) AUTHORITY AND ACCOUNTABILITY

Fire management in the Northwest Territories is the responsibility of the Department of Renewable Resources of the Government of the Northwest Territories. The forest land area is divided into 5 administrative districts - Fort Smith, Yellowknife, Fort Simpson, Norman Wells and Inuvik. Department of Renewable Resources District Managers are responsible for all fire management activities within their districts. The Territorial Forest Fire Centre in Fort Smith is responsible for co-ordination of all district fire activities as well as fulfilling territorial obligations as defined by national and international agreements.

The Director of Fire Operations at the Territorial Forest Fire Centre reports to the Assistant Deputy Minister (Operations) in Yellowknife. The Minister of Renewable Resources has ultimate accountability for the fire management program.

The new fire management policy will be supported in legislation by the *Forest Protection Act*.

(II) FIRE PREVENTION

Background

Fire prevention consists of those activities directed at reducing fire occurrence; this includes public education, law enforcement, personal contact and reduction of fire hazards and risks.

An active fire prevention program is currently carried out in the Northwest Territories. Public education consists of regular school visits and regular contact with hunters and trappers, cottage owners and the general public by Renewable Resource Officers.

An annual tour of fire operations in Fort Smith district by newspaper and radio reporters educates journalists on technical and operational aspects of fire management and this information is passed on to the public. The Territorial Forest Fire Centre works closely with the Office of the Press Secretary to provide accurate and current information to Northwest Territories residents. Updates are given in the form of press releases, daily fire updates, interviews and telephone discussions.

Fire prevention messages are also communicated through a series of posters, pamphlets and brochures targeted at various audiences (eg., hunters and trappers, cottage owners, recreational campers).These communications are translated into native languages.

Policy Directive

The Department of Renewable Resources is considering the development of a Northwest Territories Forest Fire Prevention Program including all components of fire prevention:

Community Protection Plans
School Visits
Engineering (eg., reduction of fire hazards)
Media communications
Cottage Lot Protection Plans
Law Enforcement

As part of this program, the Department of Renewable Resources plans to work with the Department of Education to develop a school curriculum for all grades with respect to environmental conservation and renewable resource management. An important aspect of the curriculum will be forest fire prevention and the role of fire in the forest environment.

(III) FIRE DETECTION

Background

Fire Detection is a system for the act of discovering, locating, and reporting forest fires.

The fire detection program of the Northwest Territories consists of fixed detection, airborne detection, an integrated lightning detection system, a 24-hour telephone reporting line and public cooperation.

There are 19 operational lookout towers in the Northwest Territories, plus one under construction. There are provisions for emergency lookouts on high ground in the Norman Wells district and near Colville Lake.

Local pilots are responsible for reporting many wildfires.Airborne detection patrols use fixed-wing aircraft. Helicopters scout high risk areas when fire danger ratings are high. These patrols carry an initial attack crew on board.

A comprehensive lightning detection system for the Northwest Territories is scheduled to be completed by 1994.

A fire weather analysis system calculates fire danger ratings and displays them on a computer screen. Potential fire behaviour and preparedness levels from local to territorial situations can also be displayed. This assists the fire detection staff to direct its attention to areas of comparatively high risk.

Policy Directive

The Department of Renewable Resources is considering the development of a Northwest Territories Forest Fire Detection Program to include all components of fire detection:

Fixed Detection (eg., lookout towers)
Airborne Detection
Communications
Public Cooperation

The fire detection program will be integrated so that a combination of detection methods are used to get the best results using available resources. The fire detection system will also be integrated with the existing communications infrastructure. Detection methods will depend upon such factors as fire risk and fire danger and will be matched to the changing fire environment.

(Iv) FIRE PRESUPPRESSION

Background

Fire presuppression consists of those fire management activities in advance of fire occurrence concerned with the organization, training and management of a fire fighting force and the procurement, maintenance and inspection of improvements, equipment and supplies to ensure effective fire suppression. A high level of resources invested in a presuppression program will result in a better program of fire suppression.

In the Northwest Territories, trained people are in place which report to the Territorial Forest Fire Centre or one of the five district offices. Fire management personnel are provided with modern communication, suppression and support equipment. Fire fighting crews consist of departmental employees and contract crews.

Additional trained and certified personnel are available on an as needed basis. These Extra or Emergency Fire Fighters are hired in response to changing fire preparedness, fire danger and fire risk.

Computerized fire management systems - information gathering, compilation and decision-making aids - are in place for managers at the Fire Centre and district offices.

Planned placement of additional remote weather stations and lightning location detectors will enhance the quality of information available to the system.

The air attack component of the presuppression program consists of land-based and skimmer-type air tankers strategically located. The land based airtanker is supported by long-term retardant bases. Helicopters equipped with buckets are contracted and strategically based. Systems and procedures are in place ensuring safe and cost-effective management of the presuppression program. Most significant is the Fire Preparedness System designed to systematically build up or down initial attack forces in accordance with predicted fire behaviour and risk. Also, regular contact is maintained between the Department of Renewable Resources and the Emergency Measures Organization.

The Northwest Territories maintains an initial attack complement of fire fighters and equipment commensurate with the current and forecast fire environment as determined by the Canadian Forest Fire Weather Index System, the Canadian Forest Fire Behaviour Prediction System and an analysis of fire weather.

Policy Directive

The Department of Renewable Resources is considering the development of a Northwest Territories Forest Fire Presuppression Program including all components of fire presuppression. The following directives are under consideration:

The Government of the Northwest Territories will provide training opportunities to its residents. Safety within overall fire operations will be governed by the Safety Act (Occupational Health and Safety Regulations), Transport Canada regulations, Northwest Territories Workers Compensation Board rules and Northwest Territories labour standards.

A fire line organization plan is to be in place so that the organizing of fire line activities follows a plan that is readily expandable to meet the demands of larger or multiple fire situations.

Fire equipment management programs are to be in place to ensure fire equipment is available to meet the requirements of fires.

Obtaining supplies and equipment, including aircraft, is to be done using Government of the Northwest Territories procurement procedures. All equipment and supplies will

meet Government of the Northwest Territories safety standards and operating specifications.

Towers, warehouses and other buildings will be constructed and maintained utilizing Government of the Northwest Territories procedures.

A Forest Fire Preparedness System that responds to the fire environment will be in place. This system will provide for the increase and decrease of the level of fire fighting resources depending on the level of anticipated fire behaviour and risk.

The Department of Renewable Resources, through community consultation, will determine the values-at-risk in each district. The level of financial resources available will be governed by (i) the values-at-risk, as determined through consultation with communities and land managers and (ii) by financial legislation passed each year by the Legislative Assembly.

Values-at-risk include: people and communities; infrastructure; primary hunting and trapping areas; cultural values (e.g., historic/archaeological sites, sacred areas); wildlife habitat (furbearers, caribou, waterfowl, moose, bison, upland game, fish, endangered species); commercial timber; water resources and watersheds.

(v) FIRE SUPPRESSION

Background

Fire Suppression consists of all activities concerned with controlling and extinguishing a fire following its detection.

Department of Renewable Resources District Managers set priorities for suppression activities in their districts and make fire management decisions based on several criteria, including the values-at-risk.

The Territorial Forest Fire Centre sets priorities and makes decisions on a territorial level regarding suppression activities. The Fire Centre co-ordinates suppression activities, including the movement of fire fighting resources, involving two or more districts.

Policy Directive

The Department of Renewable Resources is considering a Forest Fire Suppression Program outlined as follows:

Fire suppression decisions will be made by the District Managers and by the Territorial Forest Fire Centre in consideration of the following criteria: values-at-risk, the district land and resource management objectives, availability of manpower and equipment, and fire weather and fire risk in higher-valued areas.

Every fire that is detected and reported will require a decision on the magnitude and type of response. A response to any fire may include initial attack, sustained attack, limited action, delayed action or observation and monitoring.

The primary objective, for all fires that are actioned, is to suppress the fire before it becomes large and requires significant suppression effort.

Suppression action in areas bordering other jurisdictions will continue to be governed by co-operative fire control agreements. The Northwest Territories will continue to be a partner in the Mutual Aid Resources Sharing Agreement (MARS) administered through the Canadian Interagency Forest Fire Centre (CIFFC) in Winnipeg, Manitoba.

The Department of Renewable Resources is considering the development of a Forest Fire Damage Compensation Policy to compensate trappers who lose a significant portion of their livelihood (eg., traplines, cabins) due to forest fires.

(vi) PRESCRIBED BURNING

Background

Prescribed burning (controlled burning) is the controlled application of fire to a specific land area to accomplish predetermined forest management or other land use objectives. Such objectives might include reducing fire hazards; site preparation for reforestation of a harvested area; enhancement of areas as wildlife habitat; destruction of diseased forest stands or stands heavily infested with insects.

Policy Directive

Prescribed burning is recognized as a useful forest and fire management tool and will only be carried out if the objectives are well defined and there is effective community consultation.

Prescribed burning will only be carried out by personnel specially trained for such activities and will require a comprehensive and approved prescribed burn plan.

(vii) POLICY REVIEW

Fire management policy must be dynamic and must be continually reassessed to equate the various growing needs of the northern population with northern fire management capability.

There will be ongoing review of the fire management policy by the Government of the Northwest Territories and the Denendeh Conservation Board to ensure that the policy continues to respond to the needs of northern residents in an effective and efficient manner.

(viii) POLICY IMPLEMENTATION AND LEGISLATION

An implementation strategy or Action Plan for implementing the fire management policy will be developed by the Department of Renewable Resources.

A new Fire Management Policy will require legislative changes. The *Forest Protection Act* will be reviewed and redrafted as necessary to ensure that it is consistent with and reflects the Northwest Territories Forest Fire Management Policy. Other forest protection and fire management legislation and regulations will be drafted as required by the policy.

APPENDIX I

GLOSSARY OF FOREST FIRE MANAGEMENT TERMS

Aerial (Airborne) Detection
A system for the act of discovering, locating and reporting wildfires from aircraft. May be planned or unplanned.

Air Tanker
A fixed-wing aircraft fitted with tanks and equipment for dropping suppressants or retardants on fires.

Campaign Fire
A fire of such size, complexity and/or priority that its extinction requires a large organization, high resource commitment, significant expenditure and prolonged suppression activity.

Canadian Forest Fire Danger Rating
The process used in Canada to systematically evaluate and integrate the individual and combined factors influencing fire danger represented in the form of fire danger indexes.

Canadian Forest Fire Behaviour Prediction System
A subsystem of the Canadian Forest Fire Danger Rating System that provides quantitative outputs of selected fire behaviour characteristics for certain major Canadian fuel types and topographic situations.

Canadian Forest Fire Weather Index System (FWI)
A subsystem of the Canadian Forest Fire Danger Rating System that provides a uniform method of calculating numerical ratings of relative fire potential under various sets of conditions.

Fire Behaviour
The manner in which fuel ignites, flame develops and fire spreads and exhibits other related phenomena as determined by the interaction of fuels, weather and topography.

Fire Detection
A system for the act of discovering, locating and reporting wildfires.

Fire Hazard
A general term to describe the potential fire behaviour, without regard to the state of weather-influenced fuel moisture content, and/or resistance to fireguard construction, for a given fuel type. Such an assessment is based on physical fuel characteristics.

Fire Management
The activities concerned with the protection of people, property and forest areas from wildfire and the use of prescribed burning for the attainment of forest management and other land use objectives, all conducted in a manner that considers environmental, social and economic criteria.

Fire Presuppression
Those fire management activities in advance of fire occurrence concerned with the organization, training and management of a fire fighting force and the procurement, maintenance and inspection of improvements, equipment and supplies to ensure effective fire suppression.

Fire Prevention
Activities directed at reducing fire occurrence; includes public education, law enforcement, personal contact and reduction of fire hazards and risks.

Fire Retardant
A substance that by chemical or physical action reduces flammability of combustibles.

Fire Risk
The probability or chance of fire starting determined by the presence and activities of causative agents (i.e., potential number of ignition agents).

Fire Suppression
All activities concerned with controlling and extinguishing a fire following its detection.

Fixed Detection
A system for the act of discovering, locating and reporting wildfires from lookout towers.

Forest Fire
Any wildfire or prescribed fire that is burning in forested areas, grass or alpine/tundra vegetation.

Initial Attack
The action taken to halt the spread or potential spread of a fire by the first fire-fighting force to arrive at the fire. An Initial Attack Crew is a crew specially hired, trained, equipped and deployed to conduct initial attack on wildfires.

Lightning Detection System (Lightning Locator System)
A network of electronic field sensors (direction finders and position analyzers) linked to a central computer to detect, triangulate, plot the location and record cloud-to-ground lightning flashes in real time over a large predetermined area.

Preparedness
Condition or degree of being able and ready to cope with an anticipated fire situation.

Retardant Base
The ground facilities for mixing, storing and loading fire retardant into airtankers.

Values-at-risk
The specific or collective set of natural resources and man-made improvements/developments that have measurable or intrinsic worth and that could or may be destroyed or otherwise altered by fire in any given area.